IN THE CLAIMS

Please cancel without prejudice claims 4, and 17-20.

Please amend claims 1, 5-6, 8, 10, and 16 as indicated below.

1. (Currently Amended) A system, comprising:

a rotating shaft having shaft movement parameters;

an incremental shaft encoder coupled to the rotating shaft to convert the shaft movement parameters of the rotating shaft into differentially encoded electrical signals suitable for processing;

an electrical-to-optical (E/O) converter coupled to the incremental shaft encoder to convert the differentially encoded electrical signals into optical signals; a plurality of optical conductors to carry the optical signals; and an optical-to-electrical (O/E) converter to receive the optical signals from the optical conductors and convert the optical signals back into electrical signals, wherein the E/O converter includes:

a differential-to-single converter to convert the differential encoded electrical signals to single-ended electrical signals; and

a transient over-voltage protection circuit coupled to the differential-to-single

converter, wherein the transient over-voltage protection circuit provides

over voltage protection of the differentially encoded electrical signals

for the differential-to-single converter.

- 2. (Original) The system of claim 1, wherein said plurality of optical conductors includes fiber optic cables.
- 3. (Previously Presented) The system of claim 1, further comprising:a shaft coupler configured to couple the rotating shaft to the incremental shaft encoder.
- 4. (Canceled)
- 5. (Currently Amended) The system of claim [[4]] 1, wherein the transient over-voltage protection circuit comprises:
 - a voltage level regulator coupled to the transient over-voltage protection circuit to regulate the differentially encoded electrical signals to a voltage level required by the differential-to-single converter;
 - a single pole filter coupled to the voltage level regulator to filter noise from the differentially encoded electrical signals; and
 - a current limiting circuit coupled to the voltage level regulator to limit an electrical current of the differentially encoded electrical signals.
- 6. (Currently Amended) The system of claim [[4]] 1, wherein the E/O converter further includes a single-ended encoder coupled to the differential-to-single converter to convert the single-ended electrical signals received from the differential-to-single converter to the optical signals to be transmitted to the optical conductors.

- 7. (Previously Presented) The system of claim 6, wherein the single-ended encoder includes:
 - a plurality of optical couplers to couple the single-ended electrical signals to the optical conductors for transmission; and
 - a plurality of driver circuit coupled to the optical couplers respectively for each of the single-ended electrical signals, each of the driver circuit including a transistor having a base, an emitter, and a collector,
 - wherein the base of the transistor receives the respective single-ended electrical signal and the emitter and the collector of the transistor are coupled to the respective optical coupler to drive the optical coupler.
- 8. (Currently Amended) The system of claim 1, A system, comprising:

 a rotating shaft having shaft movement parameters;
 - an incremental shaft encoder coupled to the rotating shaft to convert the shaft

 movement parameters of the rotating shaft into differentially encoded electrical

 signals suitable for processing;
 - an electrical-to-optical (E/O) converter coupled to the incremental shaft encoder to

 convert the differentially encoded electrical signals into optical signals;

 a plurality of optical conductors to carry the optical signals; and

 an optical-to-electrical (O/E) converter to receive the optical signals from the optical

 conductors and convert the optical signals back into electrical signals,

 wherein the O/E converter includes:

- a plurality of optical couplers to receive the optical signals from the optical conductors, and to convert the optical signals to single-ended electrical signals; and
- a single-to-differential converter coupled to the optical couplers to convert the singleended electrical signals to differentially encoded electrical signals.
- 9. (Previously Presented) The system of claim 8, wherein the O/E converter further includes a transient over-voltage protection circuit coupled to the single-to-differential converter to provided over voltage protection for the differentially encoded electrical signals.
- 10. (Currently Amended) A method, comprising:
 - receiving differentially encoded shaft encoder signals representing one or more shaft movement parameters of a rotating shaft;
 - converting <u>via an electrical-to-optical (E/O) converter</u> the differentially encoded shaft encoder signals into single-ended electrical signals;
 - converting the single-ended electrical signals into optical signals <u>using the E/O</u>
 converter, the E/O convert including
 - a differential-to-single converter to convert the differentially encoded shaft

 encoder signals into the single-ended electrical signals, and

 a transient over-voltage protection circuit coupled to the differential-to-single

converter, wherein the transient over-voltage protection circuit provides

over voltage protection of the differentially encoded electrical signals

for the differential-to-single converter; and

transmitting the optical signals through optical conductors.

- 11. (Original) The method of claim 10, further comprising:

 coupling shaft movement parameters of a rotating shaft.
- 12. (Original) The method of claim 11, further comprising:

 converting the coupled parameters into electrical signals.
- 13. (Original) The method of claim 12, further comprising: differentially encoding the electrical signals.
- 14. (Original) The method of claim 10, further comprising: receiving the optical signals from the optical conductors.
- 15. (Original) The method of claim 14, further comprising:converting the optical signals into single-ended electrical signals.
- 16. (Currently Amended) The method of claim 15, further comprising:

 differentially encoding the single-ended electrical signals, wherein the receiving,

 converting, and differentially encoding are performed by an optical-to-electrical (O/E)

 converter, the O/E converter including
 - a plurality of optical couplers to receive the optical signals from the optical conductors, and to convert the optical signals to single-ended electrical signals; and

a single-to-differential converter coupled to the optical couplers to convert the single-ended electrical signals to differentially encoded electrical signals.

17. - 20. (Canceled)